DERWENT-ACC-NO: 1996-309529

DERWENT-WEEK: 200444

COPYRIGHT 2006 DERWENT INFORMATION LTD

TITLE: Emulsion **graft** copolymer useful for increasing impact strength of thermoplastic - has **core** and 3 **shells** mainly of methyl **methacrylate and alkyl acrylate(s), in which second shell has higher vinyl-aromatic content than first**

INVENTOR: POEGEL, J; TIEFENSEE, K ; ZIMMER, G

PATENT-ASSIGNEE: BASF AG[BADI] , BARLO PLASTICS GMBH[BARLN]

PRIORITY-DATA: 1995DE-1025882 (July 15, 1995) , 1994DE-4445703 (December 21, 1994) , 1995DE-1023465 (June 28, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 3539973 B2	July 7, 2004	N/A	012	C08F 285/00
WO 9619509 A2	June 27, 1996	G	023	C08F 285/00
WO 9619509 A3	September 6, 1996	N/A	000	C08F 285/00
DE 19523465 A1	January 2, 1997	N/A	009	C08F 265/04
DE 19525882 A1	January 23, 1997	N/A	009	C08F 265/04
EP 799256 A1	October 8, 1997	G	000	C08F 285/00
US 5767201 A	June 16, 1998	N/A	000	C08L 051/00
EP 799256 B1	November 4, 1998	G	000	C08F 285/00
JP 10510867 W	October 20, 1998	N/A	024	C08F 285/00
KR 98700354 A	March 30, 1998	N/A	000	C08F 285/00
DE 59504173 G	December 10, 1998	N/A	000	C08F 285/00
ES 2122720 T3	December 16, 1998	N/A		

000 C08F 285/00
KR 352102 B October 19, 2002 N/A
000 C08F 285/00

DESIGNATED-STATES: CN JP KR US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
AT BE CH DE ES FR GB IT LI NL SE AT BE CH DE ES FR GB IT LI NL SE

CITED-DOCUMENTS: EP 573783; US 4180529

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
JP 3539973B2	N/A	1995WO-EP05056	December 20, 1995
JP 3539973B2	N/A	1996JP-0519513	December 20, 1995
JP 3539973B2	Previous Publ.	JP 10510867	N/A
JP 3539973B2	Based on	WO 9619509	N/A
WO 9619509A2	N/A	1995WO-EP05056	December 20, 1995
WO 9619509A3	N/A	1995WO-EP05056	December 20, 1995
DE 19523465A1	N/A	1995DE-1023465	June 28, 1995
DE 19525882A1	N/A	1995DE-1025882	July 15, 1995
EP 799256A1	N/A	1995EP-0943171	December 20, 1995
EP 799256A1	N/A	1995WO-EP05056	December 20, 1995
EP 799256A1	Based on	WO 9619509	N/A
US 5767201A	N/A	1995WO-EP05056	December 20, 1995
US 5767201A	N/A	1997US-0849893	June 16, 1997
US 5767201A	Based on	WO 9619509	N/A
EP 799256B1	N/A	1995EP-0943171	December 20, 1995
EP 799256B1	N/A	1995WO-EP05056	December 20, 1995
EP 799256B1	Based on	WO 9619509	N/A
JP 10510867W	N/A	1995WO-EP05056	December 20, 1995

JP 10510867W	N/A	1996JP-0519513
December 20, 1995		
JP 10510867W	Based on	WO 9619509
N/A		
KR 98700354A	N/A	1995WO-EP05056
December 20, 1995		
KR 98700354A	N/A	1997KR-0704198
June 20, 1997		
KR 98700354A	Based on	WO 9619509
N/A		
DE 59504173G	N/A	1995DE-0504173
December 20, 1995		
DE 59504173G	N/A	1995EP-0943171
December 20, 1995		
DE 59504173G	N/A	1995WO-EP05056
December 20, 1995		
DE 59504173G	Based on	EP 799256
N/A		
DE 59504173G	Based on	WO 9619509
N/A		
ES 2122720T3	N/A	1995EP-0943171
December 20, 1995		
ES 2122720T3	Based on	EP 799256
N/A		
KR 352102B	N/A	1995WO-EP05056
December 20, 1995		
KR 352102B	N/A	1997KR-0704198
June 20, 1997		
KR 352102B	Previous Publ.	KR 98700354
N/A		
KR 352102B	Based on	WO 9619509
N/A		

INT-CL (IPC): C08F002/22, C08F265/04 , C08F265/06 , C08F285/00 , C08L033/12 , C08L051/00 , C08L051/06

ABSTRACTED-PUB-NO: EP 799256B

BASIC-ABSTRACT:

Emulsion **graft** copolymer: (I) consists of (A) 5-18 wt.% of a **first stage of**
(a1) 85-99 wt.% methyl methacrylate (MMA), (a2) 1-15 wt.% 1-8C alkyl **acrylate,**
(a3) 0-2 wt.% allyl **methacrylate** (ALMA) and (a4) 0-3 wt.% other di- or
polyfunctional comonomers; (B) 25-35 wt.% of a second stage of (b1) 10-25 wt.%
vinyl-aromatic monomers, (b2) 75-90 wt.% 1-20C alkyl **acrylate** and

(b3) 0-3 WT.%
ALMA; (C) 30-40 wt.% of a third stage of (c1) 15-27 wt.% vinyl-aromatic
monomers, (c2) 73-85 wt.% 1-20 C alkyl **acrylate** and (c3) 0-3 wt.%
ALMA; and (D)
15-30 wt.% of a fourth stage of (d1) 85-96 wt.% MMA, (d2) 3.8-10 wt.% 1-8C
alkyl **acrylate,** (d3) 0-2 wt.% other di- or polyfunctional comonomers and (d4)
0.2-3 wt.% regulator; and the ratio of the amts. of vinyl-aromatic monomers
(c1):(b1) is 1.3-1.9):1.

Also claimed are thermoplastic compsns. contg. 10-60 wt.% (I); and mouldings,
films or coatings contg. these compsns.

USE - (I) is used as additive to increase the input strength of thermoplastic
compsns. (claimed).

ADVANTAGE - (I) impart high impact strength and also improve the mechanical and
optical properties, e.g. edge yellowness and haze and reduce the tendency to
flake when sawn.

ABSTRACTED-PUB-NO: US 5767201A

EQUIVALENT-ABSTRACTS:

Emulsion **graft** copolymer: (I) consists of (A) 5-18 wt.% of a **first stage of**
(a1) 85-99 wt.% methyl methacrylate (MMA), (a2) 1-15 wt.% 1-8C alkyl **acrylate,**
(a3) 0-2 wt.% allyl **methacrylate** (ALMA) and (a4) 0-3 wt.% other di- or
polyfunctional comonomers; (B) 25-35 wt.% of a second stage of (b1) 10-25 wt.%
vinyl-aromatic monomers, (b2) 75-90 wt.% 1-20C alkyl **acrylate** and (b3) 0-3 WT.%
ALMA; (C) 30-40 wt.% of a third stage of (c1) 15-27 wt.% vinyl-aromatic
monomers, (c2) 73-85 wt.% 1-20 C alkyl **acrylate** and (c3) 0-3 wt.%
ALMA; and (D)
15-30 wt.% of a fourth stage of (d1) 85-96 wt.% MMA, (d2) 3.8-10 wt.% 1-8C
alkyl **acrylate,** (d3) 0-2 wt.% other di- or polyfunctional comonomers and (d4)
0.2-3 wt.% regulator; and the ratio of the amts. of vinyl-aromatic

monomers
(c1):(b1) is 1.3-1.9):1.

Also claimed are thermoplastic compsns. contg. 10-60 wt.% (I); and mouldings,
films or coatings contg. these compsns.

USE - (I) is used as additive to increase the input strength of thermoplastic
compsns. (claimed).

ADVANTAGE - (I) impart high impact strength and also improve the mechanical and
optical properties, e.g. edge yellowness and haze and reduce the tendency to
flake when sawn.

Emulsion **graft** copolymer: (I) consists of (A) 5-18 wt.% of a **first stage of**
(a1) 85-99 wt.% methyl methacrylate (MMA), (a2) 1-15 wt.% 1-8C alkyl **acrylate,**
(a3) 0-2 wt.% allyl **methacrylate** (ALMA) and (a4) 0-3 wt.% other di- or
polyfunctional comonomers; (B) 25-35 wt.% of a second stage of (b1) 10-25 wt.%
vinyl-aromatic monomers, (b2) 75-90 wt.% 1-20C alkyl **acrylate** and (b3) 0-3 WT.%
ALMA; (C) 30-40 wt.% of a third stage of (c1) 15-27 wt.% vinyl-aromatic
monomers, (c2) 73-85 wt.% 1-20 C alkyl **acrylate** and (c3) 0-3 wt.% ALMA; and (D)
15-30 wt.% of a fourth stage of (d1) 85-96 wt.% MMA, (d2) 3.8-10 wt.% 1-8C
alkyl **acrylate,** (d3) 0-2 wt.% other di- or polyfunctional comonomers and (d4)
0.2-3 wt.% regulator; and the ratio of the amts. of vinyl-aromatic monomers
(c1):(b1) is 1.3-1.9):1.

Also claimed are thermoplastic compsns. contg. 10-60 wt.% (I); and mouldings,
films or coatings contg. these compsns.

USE - (I) is used as additive to increase the input strength of thermoplastic
compsns. (claimed).

ADVANTAGE - (I) impart high impact strength and also improve the mechanical and
optical properties, e.g. edge yellowness and haze and reduce the

tendency to
flake when sawn.

WO 9619509A

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: EMULSION **GRAFT** COPOLYMER USEFUL INCREASE IMPACT STRENGTH THERMOPLASTIC **CORE SHELL** MAINLY METHYL **METHACRYLATE ALKYL ACRYLATE**
SECOND SHELL HIGH VINYL AROMATIC CONTENT FIRST

ADDL-INDEXING-TERMS:
METHACRYLATE! ACRYLATE!

DERWENT-CLASS: A18

CPI-CODES: A04-C01A; A04-F06B; A09-A05A; A10-C03B;

ENHANCED-POLYMER-INDEXING:
Polymer Index [1.1]
018 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63 F41 F89 D11 D84 D85 D86 D87 D88 D89 D90 D91 ; R00479 G0384 G0339 G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D85 F41 F89 ; G0817*R D01 D51 D54 H0215 ; R00637 G0873 G0817 D01 D12 D10 D26 D27 D51 D54 D57 D58 D63 D87 F41 F89 H0215 ; G0975*R D01 D51 D55 H0215 ; G0102*R G0022 D01 D12 D10 D18 D51 D53 H0146 ; R00479 G0384 G0339 G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D85 F41 F89 H0146 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63 F41 F89 D11 D84 D85 D86 D87 D88 D89 D90 D91 D92 D93 D94 H0146 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63 F41 F89 D11 D84 D85 D86 D87 D88 D89 D90 D91 H0146 H0215 ; R00637 G0873 G0817 D01 D12 D10 D26 D27 D51 D54 D57 D58 D63 D87 F41 F89 H0146 H0215 ; G0817*R D01 D51 D54 H0146 H0215 ; G0975*R D01 D51 D55 H0146 H0215 ; H0033 H0011 ; H0088 H0011 ; S9999 S1489 S1478 S1456 ; S9999 S1490 S1478 S1456 ; L9999 L2528 L2506 ; L9999 L2551 L2506 ; A999 A293 ; A999 A782 ; K9723 ; S9999 S1285*R ; S9999 S1434 ; H0317 ; P1741 ; P0088
Polymer Index [1.2]
018 ; R00479 G0384 G0339 G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D85 F41 F89 ; R00642 G0340 G0339 G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D84 F41 F89 ; R00637 G0873 G0817 D01 D12 D10 D26 D27 D51 D54 D57 D58 D63 D87 F41 F89 H0215 ; G0351*R G0340 G0339 G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D87 F41 F89 H0146 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58

D76 D88 H0146 ; R00479 G0384 G0339 G0260 G0022 D01 D11 D10 D12 D26
D51 D53 D58 D63 D85 F41 F89 H0146 ; R00642 G0340 G0339 G0260 G0022
D01 D11 D10 D12 D26 D51 D53 D58 D63 D84 F41 F89 H0146 ; R00637 G0873
G0817 D01 D12 D10 D26 D27 D51 D54 D57 D58 D63 D87 F41 F89 H0146
H0215 ; H0033 H0011 ; H0088 H0011 ; S9999 S1489 S1478 S1456 ; S9999
S1490 S1478 S1456 ; L9999 L2528 L2506 ; L9999 L2551 L2506 ; A999
A293 ; A999 A782 ; K9723 ; H0317 ; P1741 ; P0088
Polymer Index [1.3]
018 ; ND04 ; K9745*R ; B9999 B4159 B4091 B3838 B3747 ; B9999 B3747*R
; B9999 B4240*R ; B9999 B4262 B4240 ; B9999 B5663 B4240 ; B9999
B3805 B3747 ; B9999 B4397 B4240 ; B9999 B4080 B3930 B3838 B3747
Polymer Index [1.4]
018 ; R01737 D00 F48 F60 K* 1A O* 6A S* ; C999 C088*R C000 ; C999
C293
Polymer Index [1.5]
018 ; R00951 G2437 G2426 D01 D11 D10 D50 D92 F04 ; C999 C215 ; C999
C293
Polymer Index [1.6]
018 ; A999 A340*R
Polymer Index [1.7]
018 ; R05324 D01 D11 D10 D50 D61 D63 D94 F41 F62 F90 Na 1A ; A999
A635 A624 A566
Polymer Index [2.1]
018 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63
F41 F89 D11 D84 D85 D86 D87 D88 D89 D90 D91 ; R00479 G0384 G0339
G0260 G0022 D01 D11 D10 D12 D26 D51 D53 D58 D63 D85 F41 F89 ; H0317
; S9999 S1434 ; S9999 S1285*R ; H0022 H0011 ; H0033 H0011 ; P0088
Polymer Index [2.2]
018 ; ND00 ; ND04 ; K9745*R ; B9999 B4159 B4091 B3838 B3747 ; B9999
B3747*R ; B9999 B4240*R ; B9999 B4262 B4240 ; B9999 B5663 B4240
; B9999 B3805 B3747 ; B9999 B4397 B4240 ; B9999 B4080 B3930 B3838
B3747
Polymer Index [2.3]
018 ; A999 A293
Polymer Index [2.4]
018 ; A999 A340*R

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1996-098907